

<b>Notice of Allowability</b>	Application No.	Applicant(s)
	10/043,902	MEIKSIN ET AL.
	Examiner	Art Unit
	THUAN T. NGUYEN	2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to \_\_\_\_\_.
2.  The allowed claim(s) is/are 76,79-90, 92-103, 105-106.
3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

#### Attachment(s)

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Eunhee Park on 12/12/05.
3. The application has been amended as follows:  
In claim 79, page 3 of amendment (received 10/28/05), the phrase --as claimed in claim 78—should be corrected as —as claimed in claim 76—instead.

**Please delete claim 104 entirely.**

**Add new claim 106, as the following:**

106. (New) A communication system for communicating between the surface and underground areas of the earth where amount of energy used for communications is limited, comprising:

a modulator for modulating a single sideband carrier signal;

a first amplifier coupled to the modulator to amplify signals received from the modulator;  
an antenna coupled to the first amplifier to receive amplified signals from the first amplifier, the antenna being tuned to receive or transmit or receive and transmit low signal levels, the antenna being coupled to a second antenna by Faraday coupling for communicating to a second system that includes the second antenna wherein low energy input into the antenna is communicated to the second system via the second antenna;  
a microprocessor operable at least to filter noise spike from received signals;  
a comb filter module coupled to the microprocessor, the comb filter module operable to attenuate one or more harmonics that induce noise in the received signals;  
a demodulator coupled to the comb filter, the demodulator operable to recover signals;  
a switch operable to couple and decouple the antenna from a receiving terminal and a transmitting terminal,  
wherein through-the-earth communication is enabled.

~~Tony T. Nguyen  
Art Unit 2685  
December 8, 2005~~

## **DETAILED ACTION**

### ***Remarks***

1. Claims 1-75, 77-78, and 91 were previously canceled and together with claim 104 is now canceled, and new claims 98-103, and 105-106 are added. Pending claims are claims 76, 79-90, 92-103, and 105-106 for re-examination.

### ***Allowable Subject Matter***

2. Claims 76, 79-90, 92-103, and 105-106 are allowed.

### ***Reasons for Allowance***

3. The following is an examiner's statement of reasons for allowance:

The closest prior art of record issued to Anders, Stolarczyk and Halik fails to either alone or combine teach or suggest a communication system for communicating between the surface and underground areas of the earth where amount of energy used for communication is limited comprising a modulator, a first amplifier, antennas communication via a faraday coupling, a microprocessor, a comb filter and a demodulator as well as a switch for operation to communicate signals within underground areas as cited in claims 76 and 106; and further similarly in using loop antennas within a through-the earth system as called for in claims 98 and 99; in addition, the prior arts also fail to address the method of communicating signals for use in through-the-earth system where the amount of energy used is limited by modulating signals to low frequency single sideband signals, applying said signals to a loop antenna and transmitting

the low frequency single sideband signals via the loop antenna using faraday coupling and noise limiting/removing using a filter to recover signals as called for in claim 105.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

**4. Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to the New Central Fax number:**

(571) 273-8300, (for Technology Center 2600 only)

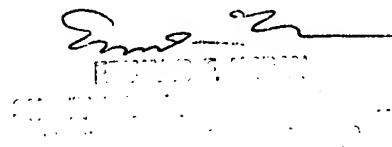
Hand deliveries must be made to Customer Service Window,  
Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

**5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Thuan Nguyen whose telephone number is (571) 272-7895. The examiner can normally be reached on Monday-Friday from 9:30 AM to 7:00 PM, with alternate Fridays off.**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (571) 272-7899.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tony T. Nguyen  
Art Unit 2685  
December 8, 2005

A handwritten signature in black ink, appearing to read "Tony T. Nguyen", is placed above a typed name and date.